

Evaluation Measures for Mobility and Accessibility for older people

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The problem

- How to determine ‘how accessible’
- How to deal with different – conflicting accessibility problems
- How to make processes such as street audits more meaningful and easier to accomplish
- Conventional approaches

The desired outcome

- Better understanding of accessibility issues in terms of people, activities and environments
- Improved design of pedestrian infrastructure
- Scientifically rigorous database of pedestrian tasks
- Scientifically justified evidence for design limits
- Disability-independent methods for measuring impacts
- Helpful advice for engineers and planners about pedestrian facilities

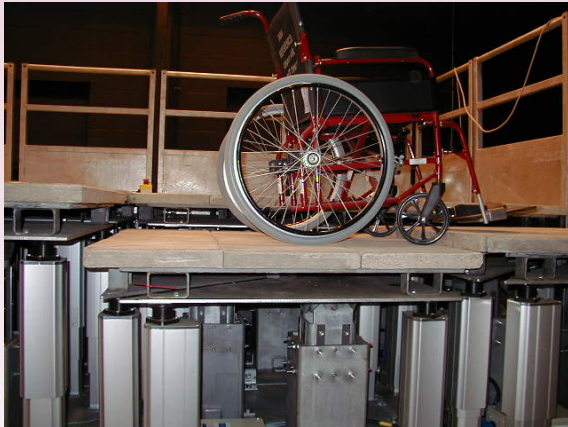
EMMA

- Project funded by DfT
- Utilises EPSRC-funded pedestrian laboratory
- Generate audit software and guidelines
- New conceptual approach based on Capabilities

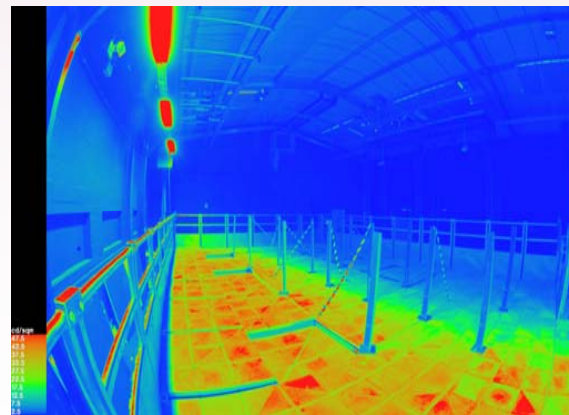
PAMELA

- Includes ...

Different surface profiles



Different lighting environments



Different noise environments

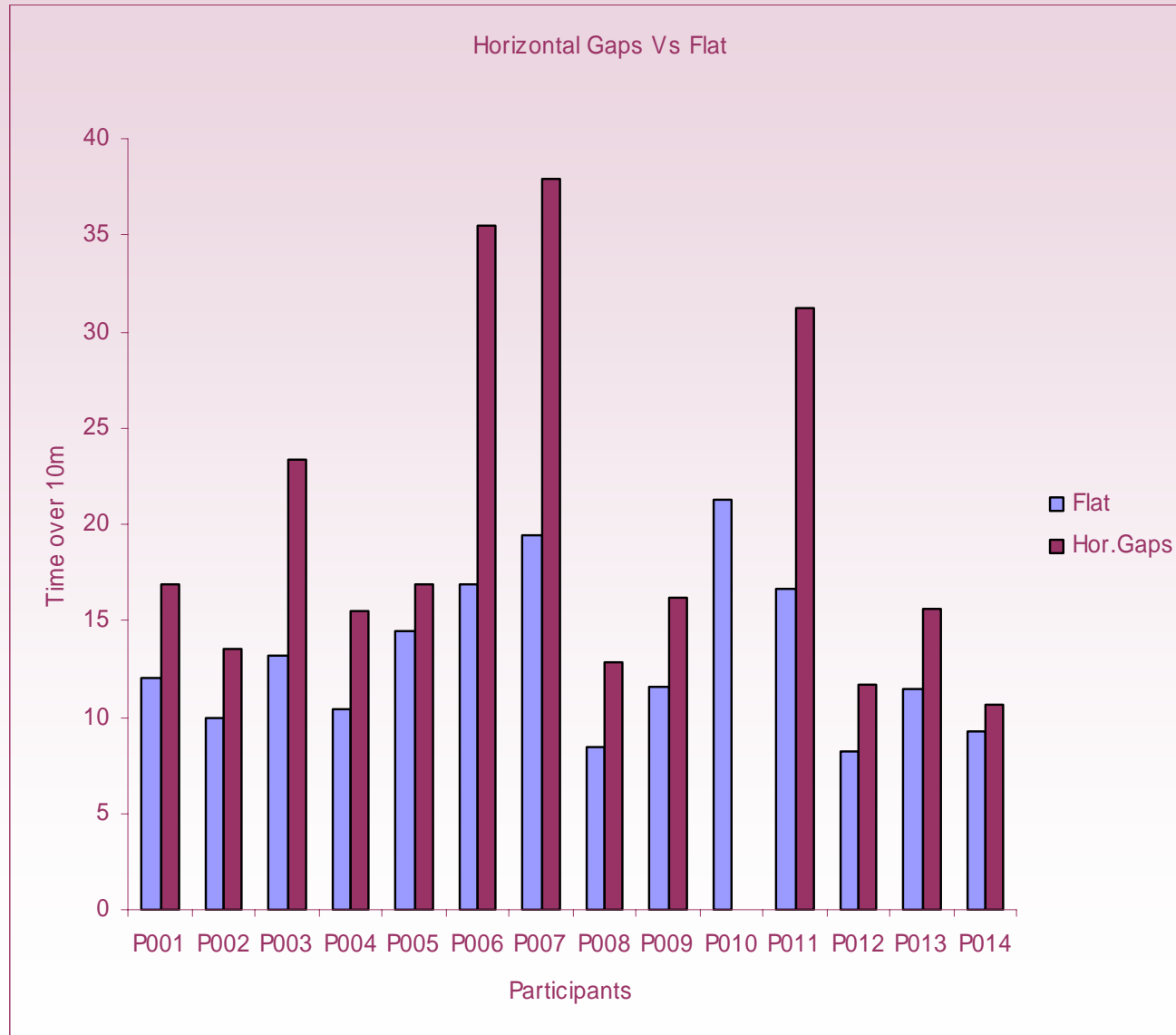
- Ambient noise
 - birdsong, street scene
- 3-D soundfield noise
 - traffic, pedestrians
- Near distance vs far distance
- Dynamic
 - trains, aircraft
- Localised sounds
 - announcements, people talking
- Layers of noise
 - all of the above, plus...

Data collection

- Laser scanners
- Video cameras (including infra red)
- Heart rate monitoring
- Vision and hearing
- Eye tracking
- Questionnaires
- Cognitive load
- Acquiring body motion scanning system for whole laboratory

EMMA experiments

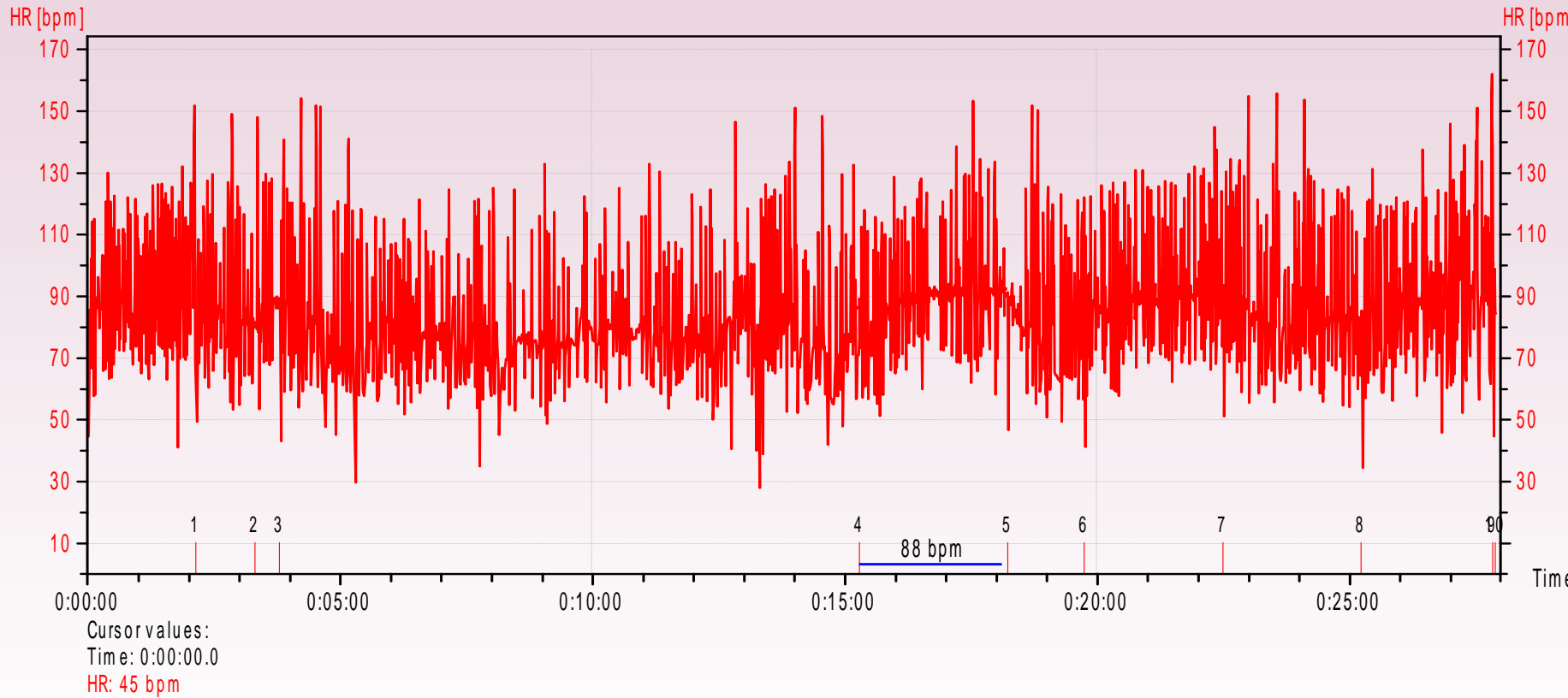
- Set layouts containing a variety of specific problems (e.g. slopes, crossfalls, steps, lighting, noise etc.)
- Participants tested for vision, hearing, etc.
- Participants walk on a flat route
- Participants walk on the layout
- Data collected



Assessment

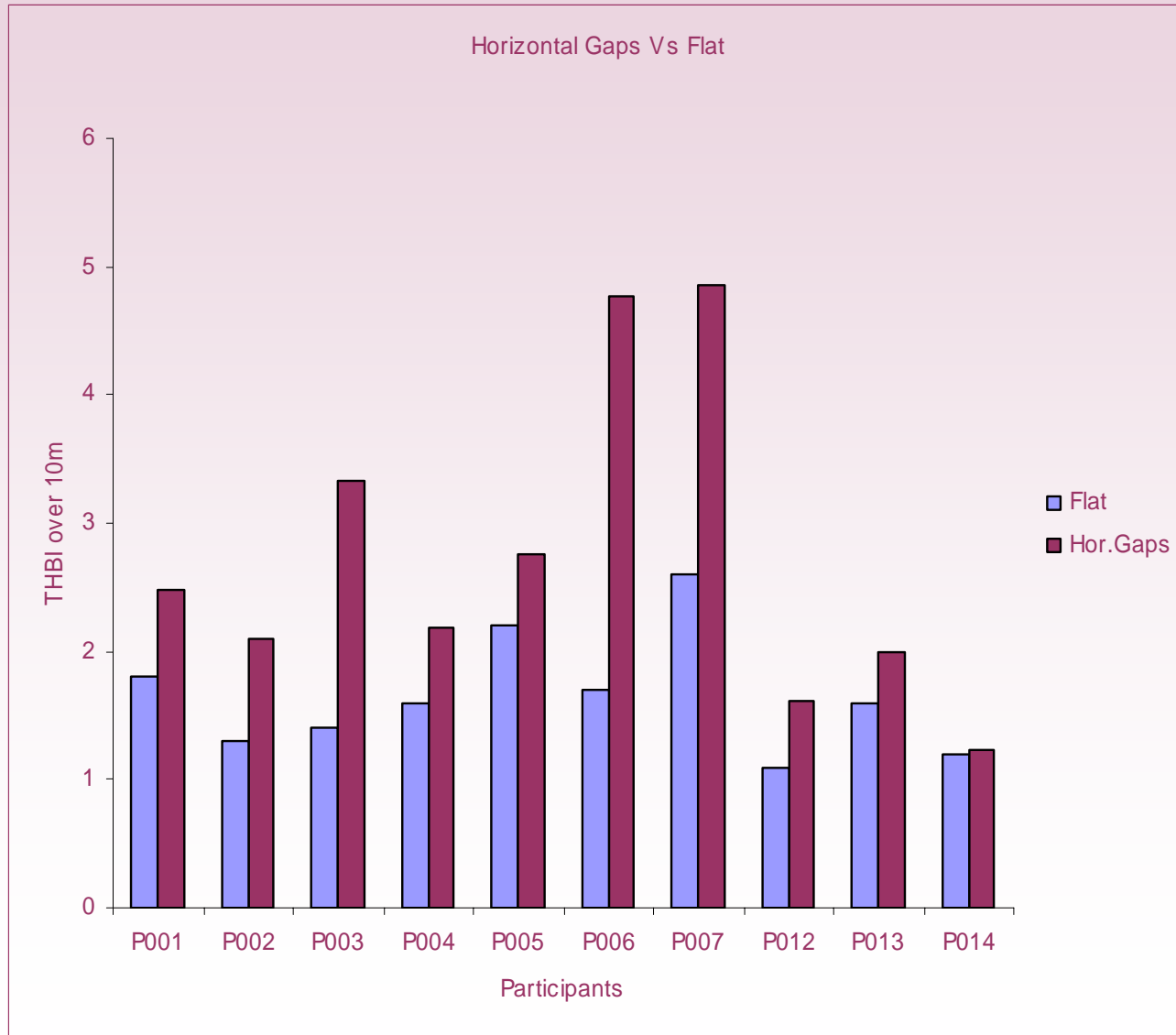
- Physical measures not sufficient
 - Difficult to compare different problems
- Time not sufficient
 - Too easy to control
- The failure problem
 - Is every non-fail a success?
- Psychophysiological measures

Heart rate plot



Person	test	Date	14/02/2006	Heart rate average	88 bpm		
Exercise	P003-06021403	Time	13:31:25	Heart rate max	153 bpm		
Sport	Running	Duration	0:27:54.6				
Note				Selection	0:15:19 - 0:18:14 (0:02:55.8)		

THBI index



Conclusions

- Psychophysiological measures
 - show good results across different problems
 - are objective
 - respond to analysis
- Future
 - Split between psycho and physiological
 - Other PP measures?